

REMARKS

Upon entry of this amendment, claims 51-53, 84 and 85 are all the claims pending in the application. Claims 44-50 and 54-83 have been canceled by this amendment. Claims 84 and 85 have been added as new claims.

Applicants note that a number of editorial amendments have been made to the specification and abstract for grammatical and general readability purposes. Due to the number of changes made, a substitute specification and abstract are submitted herewith. No new matter has been added. Also enclosed is a marked-up copy of the original specification and abstract showing the changes incorporated into the substitute specification and abstract.

I. Objection to the Claims

Claims 45 and 48 were objected to for the reasons set forth on page 2 of the Office Action. As noted above, claims 45 and 48 have been canceled by this amendment, thereby rendering the above-noted objection moot.

II. Claim Rejections under 35 U.S.C. § 112, second paragraph

Claims 44-53 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite. In particular, Applicants note that the Examiner has indicated that the claims are indefinite due to the use of the term “invariable”. In order to expedite prosecution, Applicants note that the term “invariable” has been removed from the claims. Accordingly, Applicants kindly request that the above-noted rejection be reconsidered and withdrawn.

III. Claim Rejections under 35 U.S.C. § 102

Claims 44-50 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Matsuo et al. (US 5,003,160).

As noted above, claims 44-50 have been canceled by this amendment. In this regard, Applicants note that new claim 84 generally corresponds to the features recited in canceled claims 44 and 46-48.

For example, Applicants note that claim 84 recites the features of determining a heating characteristic at each of the measuring locations by using a heating temperature at the measuring location and the temperature measured at the measuring point of the object; and simulating a temperature profile of the object to be heated when a heating condition is changed by using the heating characteristic that is determined at each of the measuring locations. Applicants respectfully submit that Matsuo does not disclose or suggest at least the above-noted features recited in claim 84.

Regarding Matsuo, Applicants note that this reference discloses a reflow furnace control system that utilizes a set of control data for operating the furnace (see col. 4, lines 7-11). As disclosed in Matsuo, the control data is associated with conditional parameters specific to a particular object to be heated, wherein the conditional parameters are input by a user for each of the objects (e.g., thickness of the printed board, surface area of the printed board, and material of the printed board) (see col. 5, lines 9-19).

In Matsuo, after the conditional parameters are input by the user, control data that most closely corresponds to the inputted conditional parameters is retrieved and is used to control

the operation of the furnace (see col. 5, lines 44-49 and col. 8, lines 33-42). In addition, as explained in Matsuo, the retrieved control data that corresponds to the inputted conditional parameters is also used to generate a simulated time-temperature profile of the object to be heated (see col. 7, lines 32-40).

Therefore, as is clear from the foregoing description, in Matsuo, in order to generate the simulated time-temperature profile, it is necessary that the physical characteristics of the object be manually inputted such that corresponding control data can be retrieved, with the simulation being performed using the retrieved control data.

In contrast, as noted above, claim 84 recites the features of determining a heating characteristic at each of the measuring locations by using a heating temperature at the measuring location and the temperature measured at the measuring point of the object; and simulating a temperature profile of the object to be heated when a heating condition is changed by using the heating characteristic that is determined at each of the measuring locations.

As is evident from the above-noted features, by utilizing the method described in claim 84, it is not necessary to input any physical characteristics of the object to be heated in order to perform the simulation of the temperature profile of the object. Instead, according to claim 84, it is possible to perform the simulation using a heating characteristic that is determined by using a heating temperature at the measuring location and the temperature measured at the measuring point of the object.

In view of the foregoing, Applicants note that because the simulation in Matsuo cannot be performed based on a heating characteristic that is determined at each of a plurality of measuring locations by using a heating temperature at the measuring location and the temperature measured at a measuring point of the object, but instead, requires that physical characteristics of the object be manually input, Applicants respectfully submit that Matsuo does not disclose or suggest all of the features recited in claim 84.

In particular, Applicants respectfully submit that Matsuo does not disclose, suggest or otherwise render obvious at least the above-noted features recited in claim 84 of determining a heating characteristic at each of the measuring locations by using a heating temperature at the measuring location and the temperature measured at the measuring point of the object; and simulating a temperature profile of the object to be heated when a heating condition is changed by using the heating characteristic that is determined at each of the measuring locations.

Accordingly, Applicants submit that claim 84 is patentable over Matsuo, an indication of which is kindly requested. Claim 85 depends from claim 84 and is therefore considered patentable at least by virtue of its dependency.

IV. Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 51-53 contain allowable subject matter.

V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may best be resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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